

Algebra Honors Unit 1 Review

Study Guide Answer Key

SOL A.1 I, II

Directions: Translate each statement.	
1. Six more than five times a number. <div style="text-align: center; margin-top: 10px;">$5x + 6$</div>	2. Eight times the difference of a seven and a number <div style="text-align: center; margin-top: 10px;">$8(7 - x)$</div>
3. Rosa earns \$8.50 an hour at the shop for normal hours and she earns \$12.25 an hour for overtime. Write an expression that represents her wages if n represents her normal hours and t represents her overtime work. <div style="text-align: center; margin-top: 10px;">$8.50n + 12.25t$</div>	4. Ten less than the quotient of a number and -3. <div style="text-align: center; margin-top: 10px;">$\frac{x}{-3} - 10$</div>
Directions: Write an expression that models the following situation.	
5. The Garden Pros charge a \$100 consultation fee plus \$25 per hour for work. <div style="text-align: center; margin-top: 10px;">$25x + 100$</div>	

SOL A.4b II

Directions: Circle the best answer to each question.													
6. Which property is demonstrated below? $2x + (x + 2)$ $(2x + x) + 2$ <div style="text-align: center; margin-top: 10px;"><i>Associative (+)</i></div>	7. Which property is demonstrated below? $3x + 1 + 4x$ $3x + 4x + 1$ <div style="text-align: center; margin-top: 10px;"><i>Commutative (+)</i></div>												
8. Directions: Use the work below to answer the questions. Circle the best answer to each question.													
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Given:</td> <td style="padding: 5px;">$1 + 2(16 - 4^2) - 5$</td> </tr> <tr> <td style="padding: 5px;">Step 1:</td> <td style="padding: 5px;">$1 + 2(16 - 16) - 5$</td> </tr> <tr> <td style="padding: 5px;">Step 2:</td> <td style="padding: 5px;">$1 + 2(0) - 5$</td> </tr> <tr> <td style="padding: 5px;">Step 3:</td> <td style="padding: 5px;">$1 + 0 - 5$</td> </tr> <tr> <td style="padding: 5px;">Step 4:</td> <td style="padding: 5px;">$1 + (-5)$</td> </tr> <tr> <td style="padding: 5px;">Step 5:</td> <td style="padding: 5px;">-4</td> </tr> </table>		Given:	$1 + 2(16 - 4^2) - 5$	Step 1:	$1 + 2(16 - 16) - 5$	Step 2:	$1 + 2(0) - 5$	Step 3:	$1 + 0 - 5$	Step 4:	$1 + (-5)$	Step 5:	-4
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9. Which property justifies moving from Step 2 to Step 3? <div style="text-align: center; margin-top: 10px;"><i>Zero Product Prop.</i></div>	10. Which property justifies moving from Step 1 to Step 2? <div style="text-align: center; margin-top: 10px;"><i>Additive Inverse OR</i></div>												

Name: _____ Date: _____ Block: _____

Directions: Evaluate each algebraic expression for the given replacement values.

$$a = 64, b = -3, c = \frac{1}{4}$$

20. $-2\sqrt[3]{a} - 2b^2$

$$\begin{aligned} &-2\sqrt[3]{64} - 2(-3)^2 \\ &-2 \cdot 4 - 2 \cdot 9 = -8 - 18 = \boxed{-26} \end{aligned}$$

21. $16b^2 - 5a - b^3$

$$\begin{aligned} &16(-3)^2 - 5(64) - (-3)^3 \\ &144 - 320 - (-27) \\ &-149 \end{aligned}$$

22. $\frac{2b-b^2}{32c}$

$$\frac{2(-3) - (-3)^2}{32 \cdot \frac{1}{4}} = \boxed{\frac{-15}{8}}$$

(leave as fraction)

23. $|8c| - 6b$

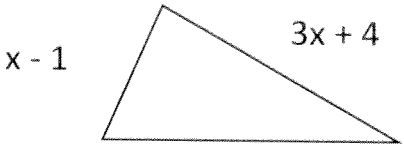
$$\begin{aligned} &|8 \cdot \frac{1}{4}| - 6(-3) \\ &2 + 18 \\ &\boxed{20} \end{aligned}$$

Place a check mark in each box to identify ALL the set(s) of numbers to which each number belongs.

Irrational (I), Rational (Q), Integer (Z), Whole (W), Natural (N)

	I	Q	Z	W	N
24. -5		✓	✓		
25. 12π	✓				
26. $2.\overline{35}$		✓			
27. $\frac{1}{3}$		✓			
28. $\sqrt{81} = 9$		✓	✓	✓	✓

SOL A.1 III, IV
Directions: Simplify each algebraic expression.

11. $x + 2a - 5x + 7x + a$ $x - 5x + 7x + 2a + a$ $3x + 3a$	12. $9 - (3x + 12)$ $9 - 3x - 12$ $-3x - 3$
13. $3(x - 4) + 7x - 9$ $3x - 12 + 7x - 9$ $10x - 21$	14. $2(2x + 5) - 6(2x - 3)$ $4x + 10 - 12x + 18$ $-8x + 28$
15. Which expression is simplified? a. $6x^2 - 2x + 3$ ✓ b. $6x^2 + 2x - 7x$ ✗ c. $6x + 2x$ ✗ d. $8 + 6x - 3$ ✗	16. Find the perimeter of the triangle. Express your answer in simplest form.  $(x - 1) + (3x + 4) + (2x + 10)$ $6x + 13$

Directions: Simplify each expression.

17. $2(\sqrt{25} - 3 + 2(5 + 1)^2)$ $2(5 - 3 + 2(6)^2)$ $2(5 - 3 + 2 \cdot 36)$ $2(5 - 3 + 72)$ $2(74)$ 148	18. $\frac{3^2 - 6^2}{(-4)^3 - -7 }$ $\frac{9 - 36}{-64 - 7} = \frac{-27}{-71} = \frac{27}{71}$	19. $8(4 + \sqrt[3]{27})^2 - 10$ $8(4 + 3)^2 - 10$ $8(7)^2 - 10$ 382
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